



**General Certificate of Secondary Education  
November 2011**

**Mathematics**

**43601F**

**(Specification 4360)**

**Unit 1: Statistics and Number (Foundation)**

***Report on the Examination***

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## General

Most students were well prepared and found all questions accessible. There were many occasions where poor arithmetic skills meant that students underperformed and could have improved with the use of a calculator. It seemed that some students did not have a ruler or protractor which led to some of the diagrams being drawn freehand.

Topics that were well done included:

- drawing and interpreting a bar chart
- frequency table
- pie chart
- interpreting a pictogram
- combinations.

Topics which students found difficult included:

- naming a data collection method
- mean, median, mode and range
- scatter diagram and line of best fit
- probability.

## Question 1

Students found parts (a) and (b) straightforward and made a good start to the paper. In part (c) there were many correct responses but some chose to ignore the given statistics when making their decision and stated, for example, “You cannot predict the future”. In part (d) most gave a correct comment about the ease of comparison of a dual bar chart.

## Question 2

Parts (a) and (b) were well answered with only a few giving an unsimplified fraction in part (b). Although the majority answered part (c) correctly, the common error was an answer of 6%. Part (d) was poorly answered with few appearing familiar with this part of the data handling cycle. A tally chart was often suggested as a data collection method.

## Question 3

Both parts of this question proved to be good discriminators with many students scoring part marks.

## Question 4

Most students appreciated that the ‘orange’ sector should be half of the pie chart and, even though many were unable to accurately show the other two sectors, they drew and labelled a 3-sector pie chart. Few showed accurate angle calculations. In part (b) many fully correct responses were seen with common errors being to assume that one cup was equivalent to ten cans or to divide 80 by 5. Most students appeared to understand what was needed in part (c)(i) but were not precise enough with their answer, often omitting to say whether they were referring to morning or afternoon. Part (c)(ii) was very well answered.

## Question 5

Those who used a systematic approach such as a two-way table were the most successful. Students who tried to list the possible outcomes often omitted one or incorrectly repeated all the outcomes.

### Question 6

Many students found this novel question involving median, range and mean quite challenging. In part (a) they assumed that if 7 was in the middle position, the magnitude of the other numbers was irrelevant. In part (b) correct range calculations were often seen such as  $12 - 5 = 7$  but then the numbers 12, 5 and 0 were selected. An incorrect method was often seen in part (c), for example  $0 + 3 + 12 \div 3 = 7$  or  $(5 + 7 + 12) \div 6 = 4$ . Most students were unable to develop a strategy to solve the problem in part (d). Many used numbers that were not from the list or confused median and range.

### Question 7

There were many fully or partially correct responses to this question. Offer 1 was usually calculated correctly and many were also able to work out Offer 3. However, taking a third off a price was less well done. Some students only worked out a third and a quarter of the price and went no further, while others calculated all the offers correctly and then chose the most expensive.

### Question 8

Part (a) was well done. Many students answered part (b) correctly but some simply tried to add on 1 hour and 21 minutes. There were many misreads of the scale in part (c). Very few students understood that they should draw a line of best fit for part (d) and those that were seen were often unsuitable. Many simply made a rough estimate from the table or graph or attempted a mean calculation.

### Question 9

Most students knew that the probabilities should total 1 but a significant number could not deal with the decimals involved. In part (b) very few understood what was required. Some were able to calculate how many of the voters did or did not vote Conservative but did not realise that they also needed to include the non-voters. Students often gave answers of 41% or 59% of 7000, or simply 7000.

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